

Children on Board issue

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Dockwalk

KEEPING UP WITH THE KIDS

Tips to entertain children on charter

CREW WITH A CAUSE

/
M/Y *Pi* rows for cleaner oceans

The Age of
Autonomy

A new era of artificial intelligence begins

Don't Blow
Your Cover

5 things you need to know about insurance

PLUS: Capt. Andrea Viazzoli on the 30-meter Nautor's Swan *Drifter Cube* & discovering Quito

DON'T LOSE YOUR BEARINGS

By Rich Merhige



Bearings are designed to hold a vessel's running gear in position while reducing friction on the propeller shaft. When installed properly and systematically maintained, bearings keep the vessel running smoothly while limiting any wear and tear on machinery. For vessel owners, this extends the lifespan and lowers maintenance costs. To achieve these results, correct type of bearings must be chosen, properly installed, and regularly maintained.


There are several types of marine shaft bearings, the most popular of which are water-lubricated, made of rubber, polymer, or a composite material. Bearings are designed with flutes and valleys that channel water flow, flushing away grit that can erode the shaft. Water-lubricated rubber sleeve bearings can have a metallic or non-metallic outer shell, chosen based on the vessel's needs. Polymer, composite, and rubber sleeve bearings with non-metallic outer shells are ideal wherever corrosion, electrolysis, or a combination of metals may be a concern (i.e., when you have a steel or aluminum stern tube).

To achieve maximum performance, the correct number of bearings and subsequent spacing is imperative. A general rule of thumb is that bearings should be spaced no less than 20 times the shaft diameter and no more than 40 times the shaft diameter. This formula ensures that the bearing is properly loaded, therefore allowing the most efficient power transfer from the engine.

As is true with all vessel

components, bearings must be regularly maintained for the vessel to run as smoothly as possible. The following should be performed to inspect bearing condition:

1. First, try to wiggle the shaft: While unscientific, if it moves excessively, the bearing is likely worn. If the propeller shaft is constantly moving and not secured by the bearing, the alignment is likely being affected.
2. Next, verify the bearing material is smooth and uniform throughout. If rough around the edges, unevenly worn, or delaminating, then the bearing is nearing failure and should be replaced.
3. Finally, measure bearing clearances (the distance between the shaft and bearing material). Optimal clearances are decided by the shaft diameter. If these clearances are out of tolerance, the bearing is worn and must be changed to avoid potential damages.

Like many pieces of machinery, all components of a vessel's running gear synergistically work together. When one part fails, the other components deteriorate exponentially faster. Worn bearings could lead to damaged shafts, stern tubes, or struts. Luckily, this costly damage can be avoided with proper care, tools, and education. 

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